IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. (Currently Amended) A signal processing system as recited in Claim 22 ~~method of processing a signal as recited in Claim 1~~, wherein the effective sampling function is a complex sampling function.

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Currently Amended) A signal processing system as recited in Claim 22 ~~method of processing a signal as recited in Claim 1~~, wherein the plurality of samples comprises a plurality of digital samples at a non-zero carrier frequency.

9. (Currently Amended) A signal processing system as recited in Claim 22 ~~method of processing a signal as recited in Claim 1~~, wherein the plurality of complex samples comprises a plurality of complex samples of the signal at baseband.

10. (Currently Amended) A signal processing system as recited in Claim 22 ~~method of processing a signal as recited in Claim 1~~, wherein the signal is a modulated signal.

11. (Currently Amended) A signal processing system as recited in Claim 22 ~~method of processing a signal as recited in Claim 1~~, wherein the signal is a modulated signal and the

plurality of complex samples comprise a directly downconverted complex image of the modulated signal.

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Currently Amended) A signal processing system as recited in Claim 22 ~~method of processing a signal as recited in Claim 1~~, wherein each of the plurality of samples results in either an I component of one of the plurality of complex samples or a Q component of one of the plurality of complex samples.

17. (Currently Amended) A signal processing system as recited in Claim 22 ~~method of processing a signal as recited in Claim 1~~, wherein each of the plurality of samples results in both an I component of one of the plurality of complex samples and a Q component of one of the plurality of complex samples.

18. (Currently Amended) A signal processing system as recited in Claim 22 ~~A method of processing a signal as recited in claim 1~~ wherein selecting the beat frequency of the effective sampling function comprises reversing the order of sorting to select a positive image or a negative image.

19. (Currently Amended) A signal processing system as recited in Claim 22 ~~A method of processing a signal as recited in claim 1~~ wherein adjusting the algorithm comprises modifying a beat coefficient.

20. (Currently Amended) A signal processing system ~~method of processing a signal~~ as recited in Claim 19, wherein adjusting the algorithm comprises modifying a beat coefficient "n"

comprising an integer by which the rate of complex sampling events "T" is multiplied to yield the period of the beat frequency of the effective sampling function.

21. (Currently Amended) A signal processing system ~~method of processing a signal~~ as recited in Claim 19, wherein the plurality of complex samples includes a baseband signal having a bandwidth, and the effective sampling function includes a beat frequency greater than one half of the bandwidth.

22. (Previously Presented) A signal processing system, comprising:

an inverter configured to selectively negate a plurality of samples of a signal to provide negated and non-negated samples of the signal; and

a first low pass filter configured to use a first set of selected ones of the negated and non-negated samples as in-phase (I) of a plurality of complex samples and a second low pass filter configured to use a second set of selected ones of the negated and non-negated samples as quadrature (Q) components of the plurality of complex samples;

wherein the plurality of complex samples correspond to the output of an effective sampling function;

and further comprising a processor configured to select a beat frequency of the effective sampling function by adjusting the algorithm, including by iteratively adjusting one or both of: a negation sequence in accordance with which samples comprising the plurality of samples of the signal are negated and a sorting sequence in accordance with which samples are sorted into I and Q components, until a beat frequency resulting in an output having a desired characteristic is achieved.

23. (Canceled)

24. (Canceled)

25. (Previously Presented) A signal processing system as recited in Claim 22, further comprising an analog to digital converter configured to generate the plurality of samples of the signal.

26. (Previously Presented) A signal processing system as recited in Claim 22, wherein one or more of the inverter, the first low pass filter, and the second low pass filter comprise a field programmable gate array (FPGA).

27. (Currently Amended) A signal processing system as recited in Claim 22, wherein ~~wherein~~ one or more of the inverter, the first low pass filter, and the second low pass filter, and the processor comprises an integrated circuit.

28. (Canceled)

29. (Canceled)